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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/220,821 | 12/24/1998 | J. RICHARD AYLWARD | 02103/347001 | 5571 |
| 26161 | 7590 | 01/16/2004 | EXAMINER | |
| FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110 | | | LEE, PING | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2644 | |
| | | | DATE MAILED: 01/16/2004 | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/220,821

Applicant(s)

AYLWARD, J. RICHARD

Examiner

Ping Lee

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 9-13, 21-23, 35, 37-39 and 43-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 14-20, 24-36, 40-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-8, 14-20, 24-34, 36, and 40-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The present invention is a device (as shown in Fig. 1 for broad interpretation) for processing a single channel input to generate a five-channel output (elected Fig. 2b) and combining the five-channel output to produce a three-channel output (elected Fig. 3c). Signal path 22c in Fig. 3c is a center channel having a spectral pattern representing the speech. However, Fig. 2b as explained by the specification as originally filed fails to show how to obtain signal path 22c having a spectral pattern representing the speech. Signal path 22c is a product of the input signal M multiplied by factor α and another factor 1.414. This product has a spectral pattern of audio frequency in the original input signal. Applying the signal path 22c as shown in Fig. 2b to the input of signal path 22c in Fig. 3c would not produce the invention as intended. The intended invention is to provide the signal within the speech spectral to the center

channel and the rest of the signal is being delayed and then generated by other channels. Therefore, the specification as originally filed fails to provide an enable description to enable one skilled in the art to which it pertains, or which it is most nearly connected, to make and/or used the invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "said variable gain" (first occurrence) in line 3.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 8, 14, 18, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiraki (US 5,197,100).

Regarding claims 1, 6, 8, 14, 18, 20 and Shiraki discloses an audio signal processing apparatus for processing a single-channel audio signal to provide a plurality of audio channel signals, comprising a separator, for separating the audio signal (after

7) into a first separated signal (to 11) and a second separated signal (to 12, 13), a first circuit (12, 13) and a processing step (by 11) to provide a first audio-channel signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki in view of Edvardsen (US 4,521,742).

Regarding claims 2 and 16, Shiraki shows an amplifier (17 or 18), but fails to explicitly show a multiplier. The amplifier as taught by Shiraki, mathematically, performs multiplication of the input signal. Edvardsen teaches an amplifier performing multiplication (col. 4, line s 55-56) with improved power handling and long term reliability. Shiraki teaches a system using a general amplifier, wherein one skilled in the art would have expected that any well known amplifier could be used without generating any unexpected result. Thus, it would have been obvious to one of ordinary skill in the art to modify Shiraki's system by using the amplifier as taught in Edvardsen in order to improve amplifier performance and increase the long term reliability.

Response to Arguments

9. Applicant's arguments filed 10/30/03 have been fully considered but they are not persuasive.

Applicant argued the election of species 7 in paper No. 9 is made without traverse.

Referring back to paper No. 9, there is no argument provided for the election response. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant argued that claims 9-13, 21-23, 35, 37-39 and 43-48 should not be withdrawn from consideration.

The elected species is species 7, shown in Fig. 2b and 3c. Claim 9 claims "multiplying said first separated signal by a first predetermined factor". This limitation is not shown as the elected species. Claims 10-13 depend on claim 9; therefore, they are also being withdrawn from consideration. Claim 21 specifies "a second circuit coupled to said separator and responsive to said first separated signal". This limitation is not shown as the elected species. Claims 22 and 23 depend on claim 21; therefore, they are also being withdrawn from consideration. Claim 35 claims "said plurality of decodable audio signals consists of two decodable audio channel signals". This limitation is not shown as the elected species. The invention as specified in claim 37 clearly does not read on Fig. 3c because the invention in Fig. 3c does not have a signal which is a combination of center signal, the sum of the left surround, the right surround

and the right channel signal. Claims 38 and 39 depend on claim 37; therefore, they are also being withdrawn from consideration. The invention as specified respectively in claims 43 and 47 clearly does not read on Figs. 2b and 3c because the invention in Figs. 2b and 3c does not have two input channel signal. Claims 44-46 depend on claim 43 and claim 48 depends on claim 47; therefore, they are also being withdrawn from consideration.

Applicant argued that the specification as originally does provide enablement.

It is noticed that the 112, 1st paragraph rejection is based on the claimed limitation "a first separated signal characterized by a spectral pattern generally characteristic of speech". The examiner pointed out in the last office action that the specification as originally filed fails to provide an enablement for this limitation. A spectral pattern generally characteristic of speech means the signal having/falling in a general speech spectrum. Applicant explained how to obtain this spectral pattern using the multiplier (55) in Fig. 2b. Applicant discussed two scenarios. One is in which the input signal (M) is a speech and the other one is in which the input signal (M) does not have any content in speech. Examiner would like to know what will happen if the input signal has content in both speech and nonspeech. By using the multiplier as disclosed in the specification as originally filed, the output to the center channel will be the signal in same spectral content (i.e. including speech and nonspeech) multiplied by 1.414α , not just the speech signal alone as intended (p. 7, line 20). Therefore, the previous 112, 1st paragraph rejection still valid.

Applicant argued that "said variable gain" in claim 17 has proper antecedent basis.

Examiner does not agree. The term "said variable gain" has been mentioned twice on the same line. The first occurrence of "said variable gain" does not have proper antecedent basis.

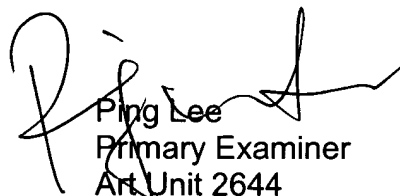
Applicant argued that Shiraki fails to disclose a second separated signal to produce a remainder of a plurality of audio channel signals.

Shiraki does show each and every claimed element. The claimed second separated signal reads on the signal toward elements 12 and 13. The remainder of a plurality of audio channel signals reads on channel reproduced from either 1 or 2, or both.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 703-305-4865. The examiner can normally be reached on Monday and Tuesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.



Ping Lee
Primary Examiner
Art Unit 2644

pwl
January 12, 2004